A Project Report On

Organise orientation programmes for farmers regarding organic cultivation,rational use of irrigation and fertilizers and promotion of traditional species of crops and plants.

Submitted

For the partial fulfillment of the requirements for the award of

BACHELOR OF

TECHNOLOGY IN

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Submitted by

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SESSION (2024-2028) DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

JHARKHAND RAI UNIVERSITY

JHARKHAND RAI UNIVERSITY RANCHI

CERTIFICATE

This is to certify that the project report on **" Organise orientation programmes for farmers regarding organic cultivation,rational use of irrigation and fertilizers and promotion of traditional species of crops and plants."** of **Community Engagement & Social Responsibility** a bonafide work of **SHIV SHNAT SHIVAM**
(BT/CSE/24/042) who carried out authentic project work under supervision and guidance of internal guide. This is to further certify to the best of our knowledge that this project has not been carried out earlier in this University.

To the best of our knowledge, the matter embodied in this project has not been submitted to any other University/Institute for the award of any Degree.

Date :

Examiner

Guide
Prof: Om Prakash Satyam
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CHAPTER 1

Introduction:

Orientation Programme for Farmers on Organic Cultivation and Sustainable Practices.

India's agricultural sector, a national lifeline, faces major threats from soil depletion and unsustainable resource use. To tackle these issues, an orientation programme was organized to empower farmers. The initiative focuses on promoting organic cultivation for improved soil health, advocating the rational use of irrigation and fertilizers through soil testing and water-saving technologies, and reviving traditional, climateresilient crop varieties. This blend of wisdom and modern techniques aims to build an eco-friendly, productive, and economically secure farming system, ensuring longterm sustainability for rural communities.

A second, equally vital focus of the orientation is the rational use of irrigation and fertilizers. Recognizing the growing scarcity of water resources, farmers receive training on effective water management practices, including the adoption of modern, water-conserving technologies like drip and sprinkler irrigation systems. These practices are demonstrated to help conserve precious water, drastically reduce wastage, and ensure a consistent, optimal water supply for crop growth throughout the season. Furthermore, the programme emphasizes applying fertilizers based on genuine need rather than arbitrary application. Farmers learn the critical practice of soil testing to accurately determine nutrient deficiencies, allowing them to apply specific fertilizers in precise amounts. This scientific approach minimizes environmental runoff and pollution, promotes soil health, and directly improves crop yield efficiency.

Finally, the orientation strongly advocates for the promotion and revival of traditional species of crops and plants. These indigenous varieties are inherently well-suited to local agro-climatic conditions and often possess natural resistance to common pests and diseases, requiring fewer interventions.

programme acts as a vital platform to educate and empower farmers, blending invaluable traditional wisdom with effective modern techniques. Through interactive sessions and hands-on demonstrations, these initiatives are fundamentally crucial for building a sustainable, eco-friendly agricultural system that secures both productivity and long-term environmental conservation.

These programmes help farmers learn new techniques that protect soil fertility and reduce the use of harmful chemicals. They also encourage the use of traditional crops that are better suited to local conditions. Such efforts not only improve productivity but also ensure long-term environmental and economic growth for rural communities.

ABOUT:- Farmer's in village and their grouth

Farmers are the cornerstone of rural prosperity. This program is designed to empower them by enhancing their knowledge and skills in crucial areas: advanced cultivation practices, strategic rotational irrigation, optimized fertilizer application, informed crop selection, and comprehensive understanding of their soil and water resources.

During my recent village survey, I observed a significant challenge faced by Indian farmers: a widespread lack of awareness regarding the various facilities and schemes provided by the Indian government. This knowledge gap means many farmers aren't benefiting from the support intended to improve their agricultural practices and overall livelihoods. Over the course of my survey, I had six distinct opportunities to engage with these farmers, allowing me to gain first-hand insight into the specific issues they confront daily ranging from unpredictable markets and climate dependency to lack of adequate infrastructure and financing.

FIGURE 1:- Interacting with farmer

Farmers give water to their fields, primarily giving access through tube wells, ponds, rivers, or wells, depending on the resource's nature gives them. They give the soil nutrients, often giving it urea and DAP for productivity. Increasingly, some are giving back to the earth by giving up chemicals, instead giving the soil natural fertilizers like cow dung and compost, thereby giving organic farming a try.

To give the soil protection, farmers give it attention through soil testing to understand what it needs. The government gives a helping hand through initiatives like the Soil Health Card Scheme, giving farmers a tool to maintain soil quality. Farmers also actively give the land protection against erosion by giving it bunds (small barriers) and giving it stability by planting trees.

The government gives financial and infrastructural support through schemes like PM Kisan Samman Nidhi, Crop Insurance Scheme, and Irrigation Schemes, giving farmers a safety net. However, administrative hurdles sometimes prevent the full benefit from giving its maximum return to all.

Farmers are widely aware of organic farming, which gives preference to natural methods. While many recognize its value, the full adoption is limited because it often gives a demanding workload and a higher initial cost. Though they still

their crops protection via chemical pesticides, they are starting to learn about and sometimes give a chance to natural alternatives like neem oil or herbal solutions such as **"dashparni ark."**

The key message this exchange gives us is that while awareness of sustainable practices and government support is present, a greater effort is needed to give all farmers the practical and accessible means to fully adopt these beneficial methods.

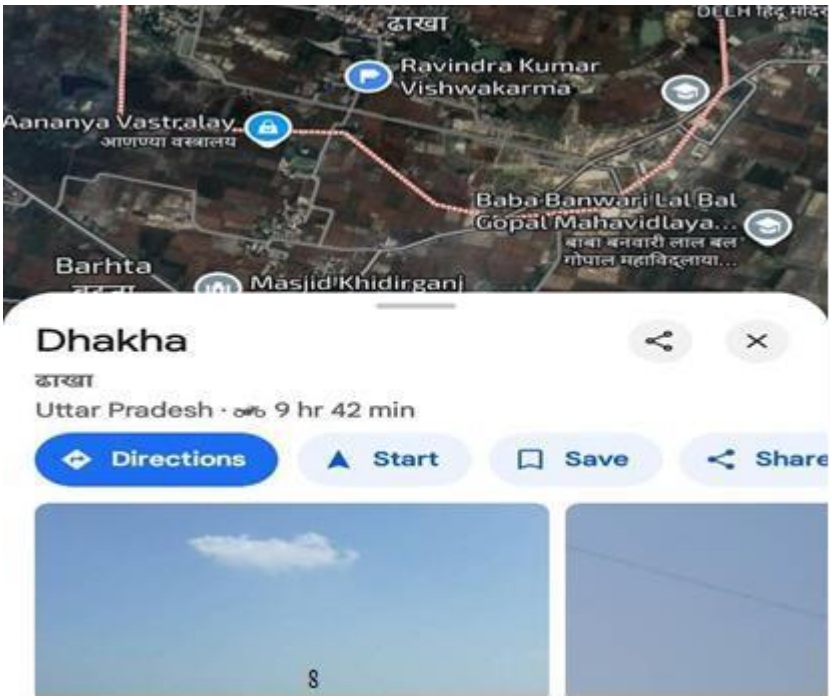


Figure 2:- Location of my orientation survey

Locality name: Neknampur, Chahaniya,
Chandauli Block name: Dhanapur
District: Chandauli
Language: Hindi and
Bhojpuri State: Uttar Prades

Farmers and agriculture are giving the world a foundation for sustainable livelihoods and economic growth. They are instrumental in giving us food security by producing essential grains, fruits, and vegetables. Additionally, they give valuable products like milk, meat, and wool through livestock raising. Agriculture is the backbone of many countries, giving significantly to their GDP and employment, especially in rural areas. By adopting sustainable practices like crop rotation and organic farming, farmers are giving back to local communities by improving their health. They also give a vital contribution to biodiversity conservation by cultivating diverse crops and plant species. Furthermore, agriculture gives support to the industry by giving raw materials, which in turn helps in trade, giving strength to the economy, and giving rise to foreign exchange income.

Farmers play a critical role in giving us effective water and soil management, which is crucial for environmental sustainability. Their efforts are directly giving an assurance that future generations will continue to thrive. They are giving them access to both healthy food and a healthy environment. Ultimately, agriculture is the foundational activity giving rise to human life and prosperity, giving us the sustenance needed for existence.

Benefits of farming and farmers :-

Farming and agriculture are super important because they help people live a good life and make the economy grow. Farmers make sure we have food security by growing all the grains, fruits, and vegetables that everyone in the world eats. They also raise animals to give us useful things like milk, meat, and wool. This whole process of farming is the backbone for many countries; it adds a lot of value to the country's money, which is called the GDP, and it gives jobs to many people, especially in the countryside. When farmers use good, sustainable ways of farming, like changing what they grow each season (crop rotation) or growing food without bad chemicals (organic farming), they help local people stay healthy. They also help keep many different kinds of plants and crops alive, which is called biodiversity. Also, farms give factories

Last but not least, farmers are really good at managing water and soil properly, which is crucial for keeping our environment healthy for the long run. Their hard work means that the kids and people of the future will still be able to find healthy food and live in a healthy environment. In the end, farming is the basic start for all human life and success.

- **Basic Infrastructure**

Village/Town:
Chahaniya Block:
Dhanapur District:
Chandauli
State: **Uttar Pradesh**

Do you rotate crops on your farmland each season :- **YES**

Have you used drip or sprinkler irrigation systems on your fields? :- **NO**

Do you know which type of fertilizer is best for your soil :-

YES Do you know the benefits of organic fertilizers?:-

YES

Do you test your soil before planting crops:- **NO**

Have you faced issues with pests due to planting the same crop repeatedly:-

YES Do you grow leguminous crops (like beans or peas) to improve soil fertility:-**YES** Are you taking steps to conserve water during irrigation:-

NO

Have you used cover crops to prevent soil erosion:-**NO**

Do you consider climate and soil type when choosing crops to plant:-**YES**

FIGURE 3:-Managing crops

FIGURE 4:-Managing crops

Chapter 2

FIELD SURVEY

I conducted an orientation program for farmers to educate them about modern agricultural practices, focusing on cultivation, fertilizers, and irrigation techniques. The session began with a warm welcome, where I emphasized the significance of adopting innovative methods for better yields. I explained advanced cultivation practices, including soil testing, crop rotation, and the use of high-quality seeds to enhance productivity.

A field survey conducted at a farm typically involves collecting data, observations, or insights on various aspects related to the farmers and their facilities, rotation, fertilizers, dependency.

Objectives of the Field Survey: facilities and farming:

1. **Land valuation**

Topography: Understand the physical characteristics of the land. Including slope and elevation.

Soil Analysis: Identifying Soil Types Fertility, pH and nutrient content for crop suitability.

Drainage and Irrigation: Assessing water availability and flow for irrigation planning.

2. **Crop analysis**

Existing Crops: Assessment of current crop conditions and yields.

Crop suitability: Determining which crops are most suitable for an area based on environmental and soil factors.

Pest and Disease Monitoring: Identifying pests or diseases that may affect yield.

3. Water resource assessment

Irrigation syatem: Eavaluating the performance of existing irrigation facilities.

Water Quality: Testing water for contaminants or testing its suitablity for agriculture. **Water Level Monitoring:** Understand groundwater levels and recharge rates.

4. Evaluation of infrastructure and facilities

Storage Facilities: Check the condition and capacity of warehouses, silos, and cold storage's.

Agricultural equipment: Assessing the readiness and condition of machinery and tools.

Transport connectivity: Evaluation of roads and logistics networks for moving goods.

5. Environmental impact:

Biodiversity: The study of the impact of agricultural activities on local flora and fauna. Erosion and Degradation: Tracking down the problem of soil erosion or soil erosion.

Climate considerations: Gather information on weather patterns, rainfall, and temperature.

6. Economic and Social Factors

Cost-benefit analysis: Estimating the profitability of agricultural practices**. Workforce Resources:** Understand workforce readiness and skills.

Market Access: Evaluating proximity to the market and price trends.

FIGURE 5:- Potato Crops

FIGURE 6:- Wheat Crop

Rotating Crops:-

Crop rotation is essential for several key reasons, which will be detailed below.

Rotating crops is most important for several reasons some reasons are given ahead.

Soil health:- Different crops are giving the soil different demands for nutrition; therefore, rotating them is key to giving back and maintaining soil fertility while reducing the risk of giving way to depletion.

Improved Yield: By maintaining soil health and reducing pest and disease pressure, crop rotation can lead to better crop yields.

Weed Management: Rotating crops helps manage weed populations more effectively, mainly because each different crop type competes with weeds using a different mechanism.

Pest and Disease Control: By forcing weeds to compete with a new crop each season, rotation becomes a highly effective way to manage and control weed populations.

Biodiversity: Crop rotation is an essential and smart way to farm because it helps the land stay healthy for a long time. Since every different crop takes different nutrients from the soil, rotating them helps maintain soil fertility and stops the ground from running out of important food, which is called soil depletion.

Also, changing the crop helps deal with weeds better because each type of crop fights against weeds in a unique way, making the weeds less likely to take over. This practice is also great for the environment, as it promotes biodiversity (meaning a variety of life is supported), which makes the whole farm ecosystem much tougher and more resilient against problems. Overall, crop rotation is a key sustainable method that directly enhances soil health, cuts down on issues with pests and diseases, and ultimately helps farmers grow more food, leading to better overall crop productivity.

FIGURE 7:- Fertilizer Crops

The importance of two types of fertilizer to a culture and or specific:

Nutrient supply: Fertilizers are very important because they supply essential nutrients that crops need to grow big and strong, which leads to better harvests. The three most vital nutrients they provide are nitrogen (N), phosphorus (P), and potassium (K). Nitrogen helps plants grow green leaves and stems, phosphorus is key for strong roots and flower development, and potassium helps with overall plant health and fighting off diseases. By providing these key elements, fertilizers ensure that even poor soil can support high growth and productivity.

Improved Sole Fertility: Fertilizer can replenish nutrients from the sole by maintain the reproductive rate in successive plant cycles.

Rapid absorption of nutrients: Fertilizers, which are mostly chemicals. Will be easily absorbed by plants. As a result, plants grow faster and are more efficient in using nutrients.

Negative effects of fertilizers:

Manure Decomposition: Excessive use of chemical fertilizers can lead to acidity of the manure. Nutrient Imbalance and loss of organic matter Fertilizer quality degradation in the final analysis.

Water pollution: Using too much fertilizer is bad for the environment. The excess chemicals flow off the land into rivers and lakes or seep down into groundwater. This causes eutrophication, where rapid algal growth sucks the oxygen out of the water, creating "dead zones" that severely damage the aquatic ecosystem.

Plant Toxicity: Excessive fertilization creates nutrient toxicity, which severely harms plants. This problem directly causes poor health and can lead to the failure of delicate seedlings right when they need the most support.

Environmental benefits

Soil health: Improve soil fertility and structure by using natural fertilizers such as compost and manure.

Biodiversity: Promotes diverse ecosystems by avoiding synthetic chemicals and monocultures.

Water Quality: Reduce water pollution by eliminating the use of pesticides and chemical fertilizers.

Carbon sequestration: Promote practices such as crop rotation and cover crops. This increases carbon storage in the soil.

Health benefits

Reduce chemical exposure: Organic food production avoids synthetic pesticides. Herbicides and GMOs, which may reduce health risks for consumers and farmers.

Nutrition: Some studies suggest that organic products may contain high levels of certain nutrients.

Economic benefits

Premium Price: Organic products are usually priced higher in the market. which is beneficial to farmers.

Employment Opportunities: Organic farming is more labor intensive. creating employment in rural areas.

Productivity and land use

Lower yield: In general Organic farming is less productive compared to conventional farming. Therefore, more space is required to meet the same demand.

Expanding land use: If demand increases significantly Forest areas may be deforested or converted into agricultural land.

Economic challenges

Higher costs: Organic certifications and practices can be expensive. creating obstacles for small farmers.

Market Access: Accessing the market is a significant challenge for organic farmers because they must overcome complex distribution hurdles. They often struggle to set up reliable delivery networks, and they also face intense competition from much larger conventional producers. This competition, especially on price, makes it difficult for organic farmers to secure stable sales.

Products to customers is a major challenge for organic farmers because they must overcome significant distribution hurdles; it's difficult for them to set up reliable delivery networks due to their smaller production volumes. Compounding this issue is the intense competition from conventional producers, who can offer much lower prices thanks to large-scale operations. This combination of logistical difficulty and pricing pressure makes it hard for organic farmers to effectively access and maintain market share.

Quetion asked by farmer's during orientation program: Question 1:-

What is your village's name?

Answer :- Neknampur.

Question 2:- How much time do you spend in the

fields? Answer :- 4-8 hours.

Question 3:- What are the main crops of your

fields? Answer:- Wheat, rice, vegetables etc.

Question 4:- Do you use fertilizers in your

fields? Answer:- Yes**.**

Question 5:- How do you provide irrigation of your

crops? Answer:- Canal, Using motors, rain water

harvesting.

Question 6:- Have you tested the soil of your fields?

Answer :- NO

Question 7:- How do you sow seeds in your

fields? Answer:- Tractor.

Question 8:- Does rainfall affect your

fields? Answer:- Probably No.

Question 9:- Is the government working on improving the productivity of your fields or not?

Answer:- Scheme is available but not reaching to the common peoples.

Question 10:- Do you like organic

farming? Answer:- Yes

Question 11:- Do animals cause damage to your

crops? Answer:- Yes

Question 12:- Have you insured your

crops? Answer:- Yes**.**

Question 13:- Do you use new seeds

every year? Answer:- Yes.

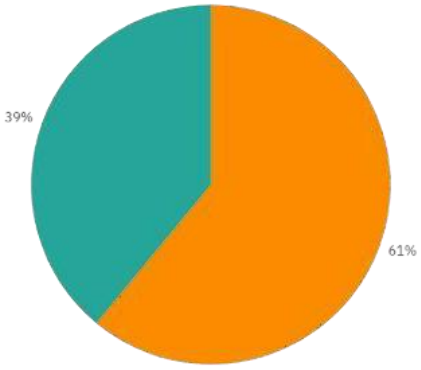
CHAPTER 3

REPORT

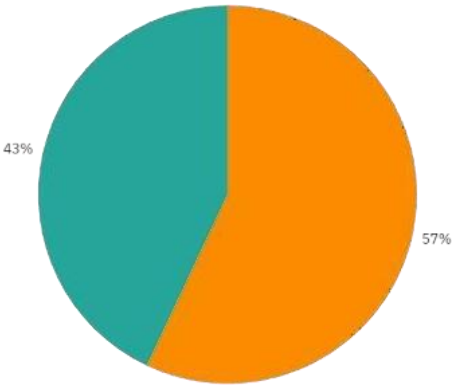
We prepared report according to the questions we ask from farmer. 1**. Did most farmers already have basic knowledge about crop rotation?**

10% No & 90% Yes

2. **Did farmers mention water scarcity as a key issue for irrigation?**

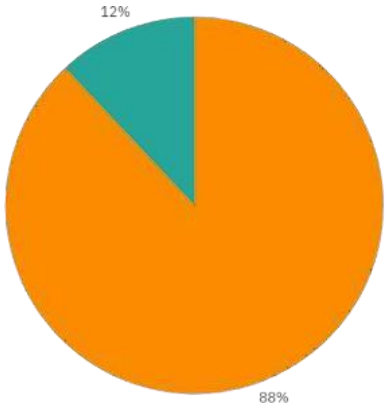


39% No & 61% Yes



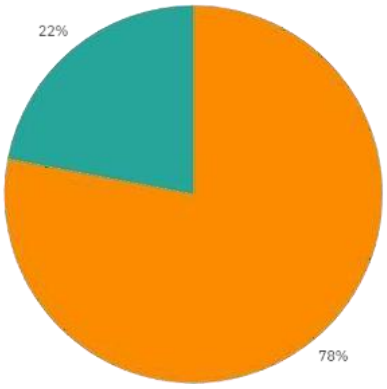
57% No & 43% Yes

3. **Have you faced any challenges in accessing resources?**



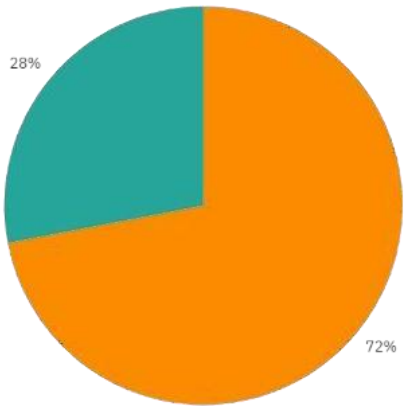
88% No & 12% Yes

4. **Are you satisfied with crop production of farmers?**



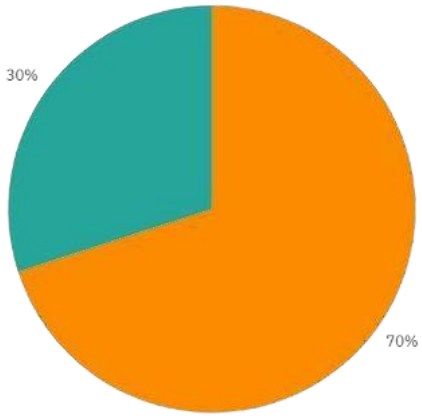
22% No & 78% Yes

5. **Do you think that organic farming is best or not?**



22% No & 78% Yes

6. According to your survey is farmers condition is good in your area?



28% No & 72% Yes

Chapter 4

Conclusion

This crucial orientation program for farmers is being organized to focus entirely on the core pillars of sustainable agricultural practices. The program will provide detailed training on several key areas, starting with the importance of crop rotation, which is vital for naturally maintaining soil fertility and reducing pest issues. Farmers will also learn about effective irrigation methods, such as drip and sprinkler systems, which are essential for significantly increasing the efficiency of water resources and conserving this precious resource. Furthermore, the program emphasizes the responsible use of fertilizer, educating farmers on calculating precise amounts to prevent wastage, nutrient toxicity, and dangerous runoff into local waterways. Finally, a significant portion of the training will cover promoting the diversity of plants and crops. By mastering these techniques—from using water wisely to maintaining a varied farm—the program aims to boost overall crop production, actively maintain soil health, and fundamentally ensure the long-term agricultural sustainability of their land and livelihoods. This comprehensive preparation is necessary to help farmers thrive in a changing environment.

Key insights and results:

Raising awareness

The program successfully highlighted the critical importance of crop rotation, a timetested agricultural practice that, surprisingly, is still underutilized in many areas. Farmers gained valuable knowledge, learning that rotating crops such as legumes, grains, and tubers offers major, multifaceted benefits: it effectively breaks the life cycle of insect pests, significantly improves soil fertility by balancing nutrients, and substantially reduces their reliance on expensive chemical production factors like synthetic fertilizers and pesticides. This shift helps create healthier, more sustainable fields.

The training emphasized crop rotation, a powerful, time-tested strategy that some farmers still overlook. By rotating crops such as legumes, grains, and tubers, farmers discovered practical methods to break pest cycles, naturally.

Efficient use of irrigation

Farmers gain insight into advanced irrigation systems such as drip and sprinkler methods. This can greatly reduce water wastage. and guarantees even distribution of water. This program emphasizes the importance of scheduling irrigation according to crop needs and local water availability.

Fertilizer management

A crucial segment of the training focused heavily on the serious problem of the excessive and inappropriate use of chemical fertilizers. The program actively encouraged farmers to achieve a better balance, suggesting they dramatically reduce their reliance on chemicals by incorporating organic fertilizer substitutes. These vital substitutes include natural options like compost, nutrient-rich green manure, and effective biological fertilizers. To ensure they use *just* the right amount of nutrients, the trainers stressed the absolute necessity of conducting adequate soil testing before fertilizing. By testing the soil first, farmers can precisely determine what their crops need, effectively preventing over-fertilizing and avoiding the significant negative environmental impact, such as water pollution and nutrient toxicity, that chemical overuse causes. This shift promotes healthier soil and cleaner waterways.

Variety of cultures and plants

During the interactive sessions, farmers clearly laid out several major hurdles impacting their work, including tight financial constraints and persistent water shortages. They also noted their difficulties with limited access to essential fertilizers and a lack of exposure to modern, advanced farming techniques. To overcome these issues, several practical solutions were put forward and discussed. These included the benefits of establishing collaborative farmer groups to pool resources, actively taking advantage of government support plans, and seeking community support for effective resource sharing.

Suggetions:-

1. Farmers voiced key challenges like financial constraints, water shortage, and limited access to technology/fertilizer. Solutions included forming collaborative groups, utilizing government schemes, and promoting community resource sharing.

2. The curriculum must be customized, adapting specialized training content to match local cultural patterns, the specific needs of the state (or region), and prevailing climatic factors.

3. To ensure both accessibility and complete understanding, educational materials like brochures and manuals should be distributed, translated into all relevant local languages.

4. Establish a farmer cooperative so members can collectively purchase necessary inputsincluding fertilizer, seeds, and irrigation equipment at a reduced, bulk cost.

5. To facilitate practical learning, arrange field visits that allow farmers to observe successful crop rotation methods and advanced irrigation techniques in action at model farm sites.

6. Form a farmer cooperative to promote the joint purchase of fertilizer, seeds, and irrigation equipment, securing these necessary inputs at a reduced cost.

7. We can work in close partnership with relevant governmental agencies and departments to significantly boost awareness and understanding among the farming community. The primary goal of this collaboration would be to effectively disseminate comprehensive information concerning the full range of financial subsidies, grants, and technical support programs that are specifically

designed to incentivize and facilitate the adoption of sustainable an environmentally friendly farming techniques.

8. Perform individual soil tests to enable farmaer to identify the correct fertilizers and the most appropriate crops that will thrive in their unique soil conditions.

9. Implement training on organic farming methods, such as utilizing compost, green manure, and biological fertilizers, as a strategy to decrease reliance on chemical inputs for crop production.

10. Offer individual soil tests that clearly show farmers which fertilizers and crops will work best for their specific soil conditions.

11. Organize field visits to successful model farms where farmers can directly observe and learn about effective crop rotation practices and advanced irrigation techniques in action.

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